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| What provides a path for ions to move from one half-cell to the other in a electrochemical cell. | salt bridge | C(s) / Cr3+(aq) , Cr2O72–(aq) // Zn2+(aq) / Zn(s)  Calculate the *E*cell for this system given.  *E*°(Cr2O72–/Cr3+) = +1.33  *E*°(Zn2+/Zn) = –0.76  Will the reaction occur? | *E*cell = *E*RH – *E*LH  = –0.76 V – 1.33 V  = –2.09 V  *E*cell is a (-)  *v*alue therefore it is not spontaneous and won’t occur as written |
| Standard E° potentials are measured with respect to what standard half-cell. | standard hydrogen electrode (SHE) | Calculate the *E*celland hence determine whether Cl2 will oxidise Mn2+ to Mn3+.  *E°*(Cl2/Cl–) = 1.36 V *E°*(Mn3+, Mn2+) = 1.49 V | Cl2 is to be reduced, Mn2+ is to be oxidised:  *E*cell = *E*red – *E*ox  = 1.36 V – 1.49 V  = – 0.13 V |
| In cell diagrams, the right hand cell is written as the \_\_\_\_\_\_\_ half cell. | reduction | What is the test for Chlorine gas?  And what would you observe? | Starch iodide paper will go brown |
| \_\_\_ always occurs at the cathode. | reduction | What is the test for Fe3+ ions? | Colourless potassium thiocyanate will go blood red |
| \_\_\_ always occurs at the anode. | oxidation | What is the test for sulphate ions? | Add barium chloride a white precipitate of BaSO4  Will form |
| In cell diagrams, the \_\_\_-hand cell is written as oxidation. | left | Name and give the colour of the MnO42– ion  Also give the oxidation number of the Mn atom in MnO42–  What conditions are required to form this ion? | Manganate ion  Green  +6  Basic conditions |
| Calculate the *E*cell for this system.  *E*°(Al3+/Al) = –1.66 V,  *CELLDIAG6E*°(Cu2+/Cu) = +0.34 V  is it spontaneous? | *E*cell = *E*RH – *E*LH  = 0.34 V – (–1.66 V)  = 2.00 V  + ve therefore spontaneous | What would you observe when  MnO4– is reduced in neutral conditions | Purple to brown colour forms |
| CELLDIAG7  Write the cell diagram for the above circuit | C(s) / Cr3+(aq) , Cr2O72–(aq) // Zn2+(aq) / Zn(s) | What would you observe when  C2O42– is oxidised? | A colourless solution reacts to form a colourless gas (which turns limewater milky). |